



# Land-use management – an institutional economics perspective

Kilian Bizer, Georg-August-Universität Göttingen

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## Outline

- (1) Problem or the objective
- (2) Behavioural model
- (3) The instrument: TPP
- (4) Conclusion of TPP
- (5) Policy implications



## For changing behaviour of actors we must...

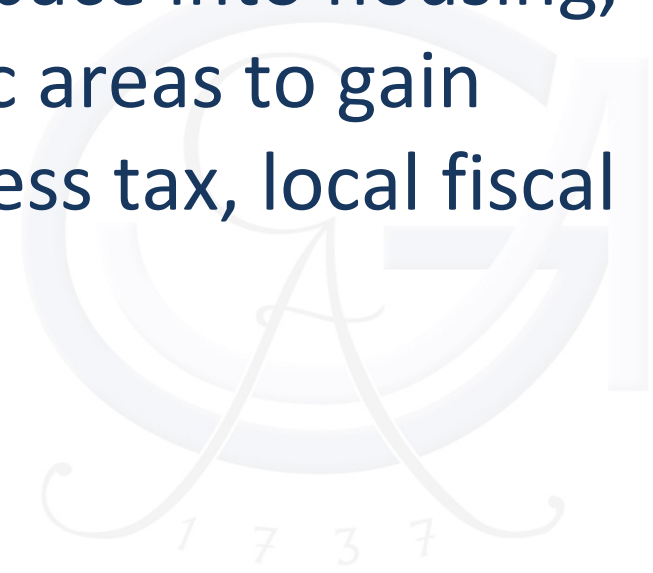
- ... figure out what is the objective
- ... figure out why they behave the way they do (motives, preferences, value orientation...)
- ... figure out how actors behave (calculating, habitual, emotional,...)
- ... design the appropriate instrument for change





## So what's wrong with land-use management?

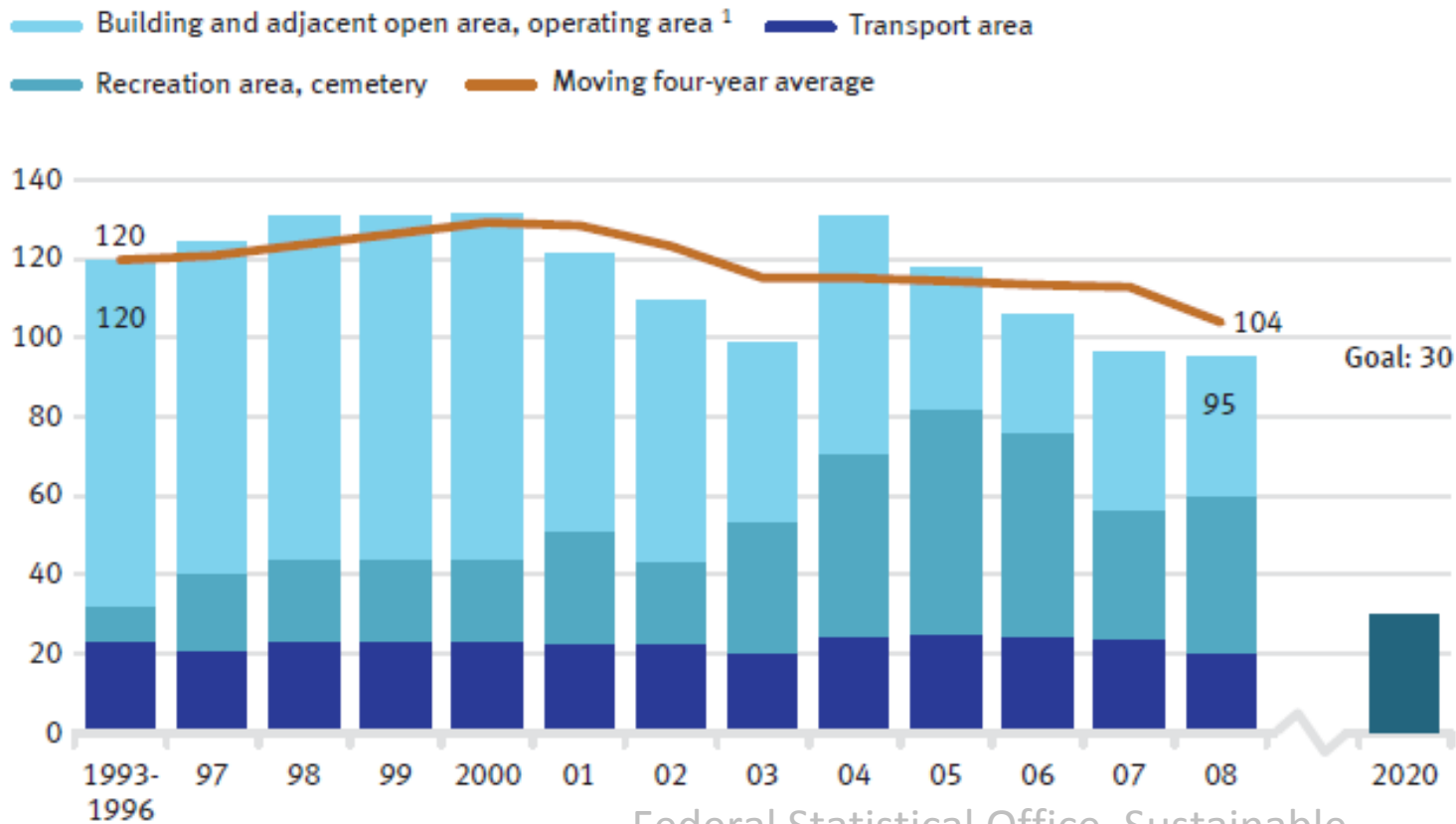
- Current land use destroys biodiversity
- Agriculture is paid largely for producing private goods but little goes into public goods, i.e. biodiversity, ecosystem services
- Municipalities convert open space into housing, business & industry and traffic areas to gain revenues (property tax, business tax, local fiscal relations)





# Daily Conversion of Land for Housing and Transport Purposes in Germany

Increase in land use for housing and transport in ha per day

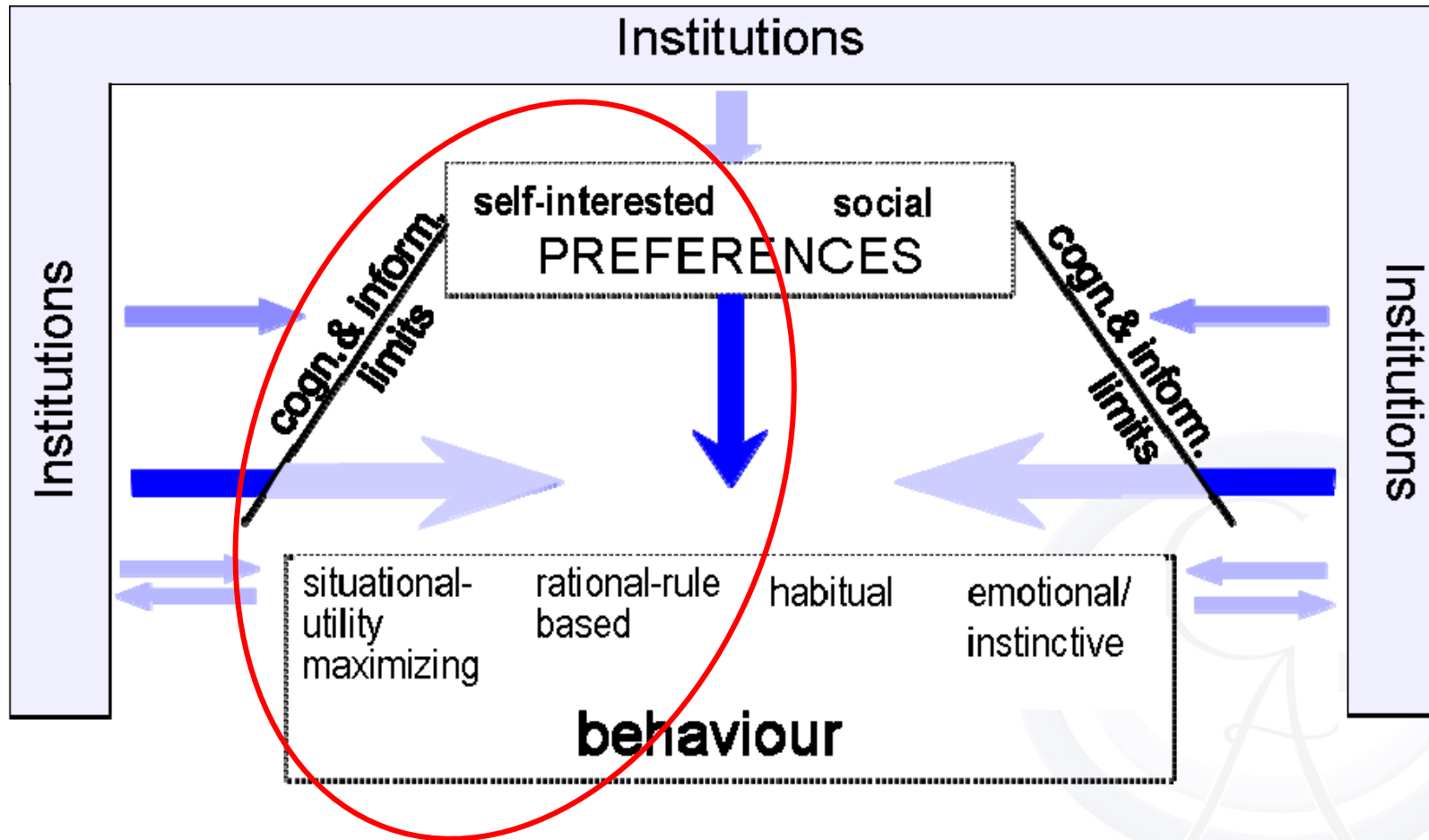


<sup>1</sup> Excluding exploitation area.

Federal Statistical Office, Sustainable Development in Germany, Indicator Report 2010



# Model of behavior



Source: based on Führ/Bizer 2007



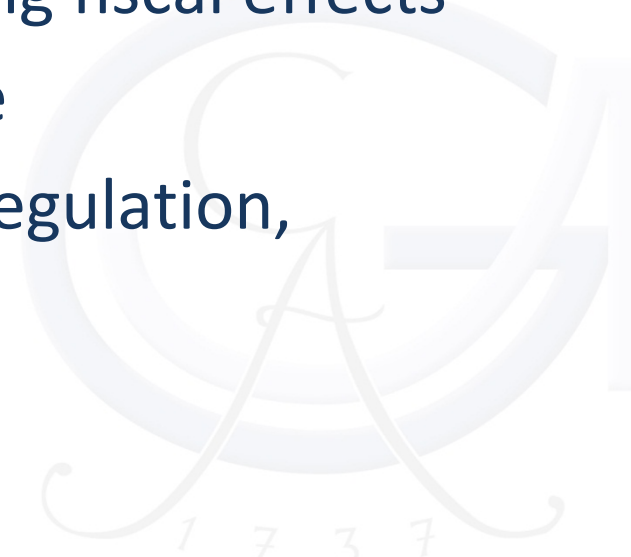
## Why behave municipalities the way they do?

- Missing information: erring on fiscal revenues and actually losing money
- „Political business cycle“: mayors must be strong on providing for businesses and housing for voters
- Correctly predicting revenues: Positive returns



## Why TPP?

- Price is powerful mechanism
- New price signals „caution: calculate!“
- Price instruments should not go without institutional guide rails such as
  - Informational tools ... calculating fiscal effects
  - Campaigns to support objective
  - Market boundaries ... market regulation, grandfathering of TPP







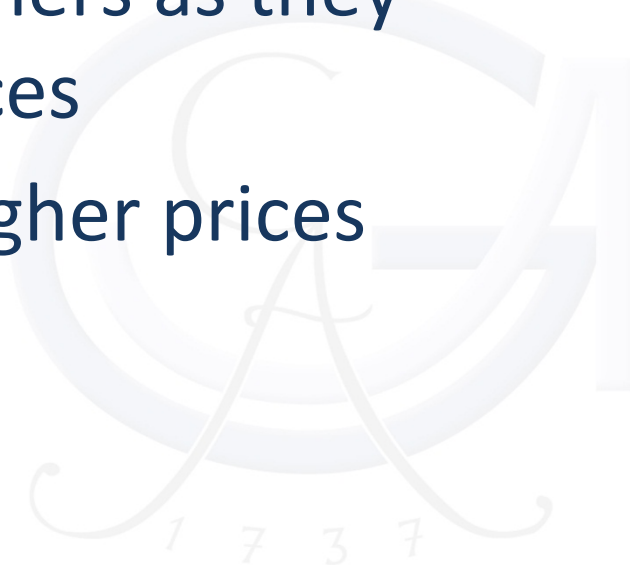
## Why TPP?

- Federal objective (30 ha/day) can be met exactly
- TPP can be fitted into existing planning law
- ... easy to calculate contribution of each state
- Equalization of burdens: communities pay for development to those who forego development



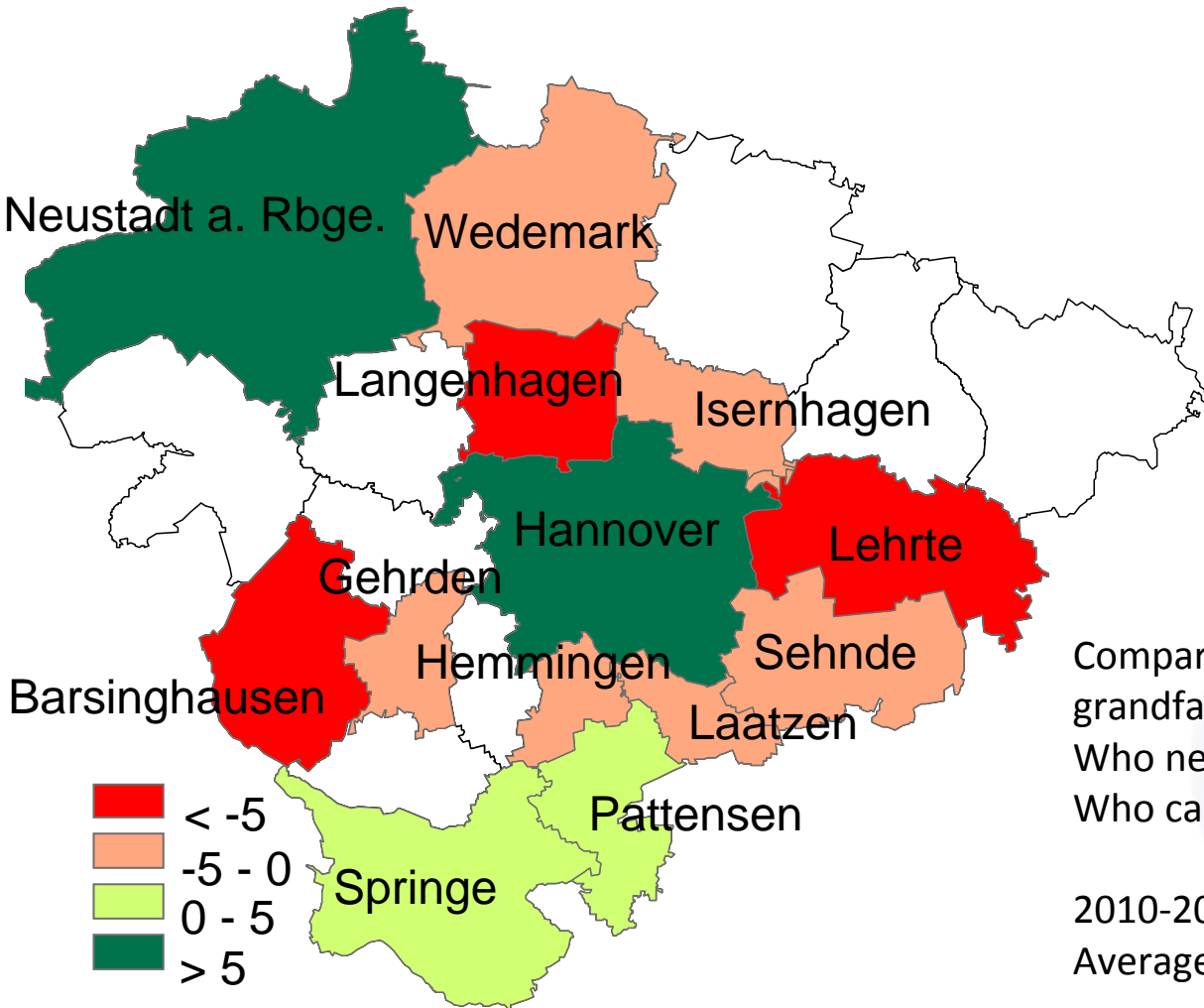
## Why not TPP?

- Planers cannot calculate
- Transactions costs are enormous for
  - market observation
  - trading
- No efficient outcome with planers as they follow their mayor's preferences
- Monopolization will lead to higher prices





# TPP: Hannover Region



Comparison of planned areas and grandfathering of TPP:  
 Who needs to buy (red)?  
 Who can sell (green)?

2010-2024  
 Average of hectares per year  
 Source: Henger 2011



## TPP: Experimental Framework

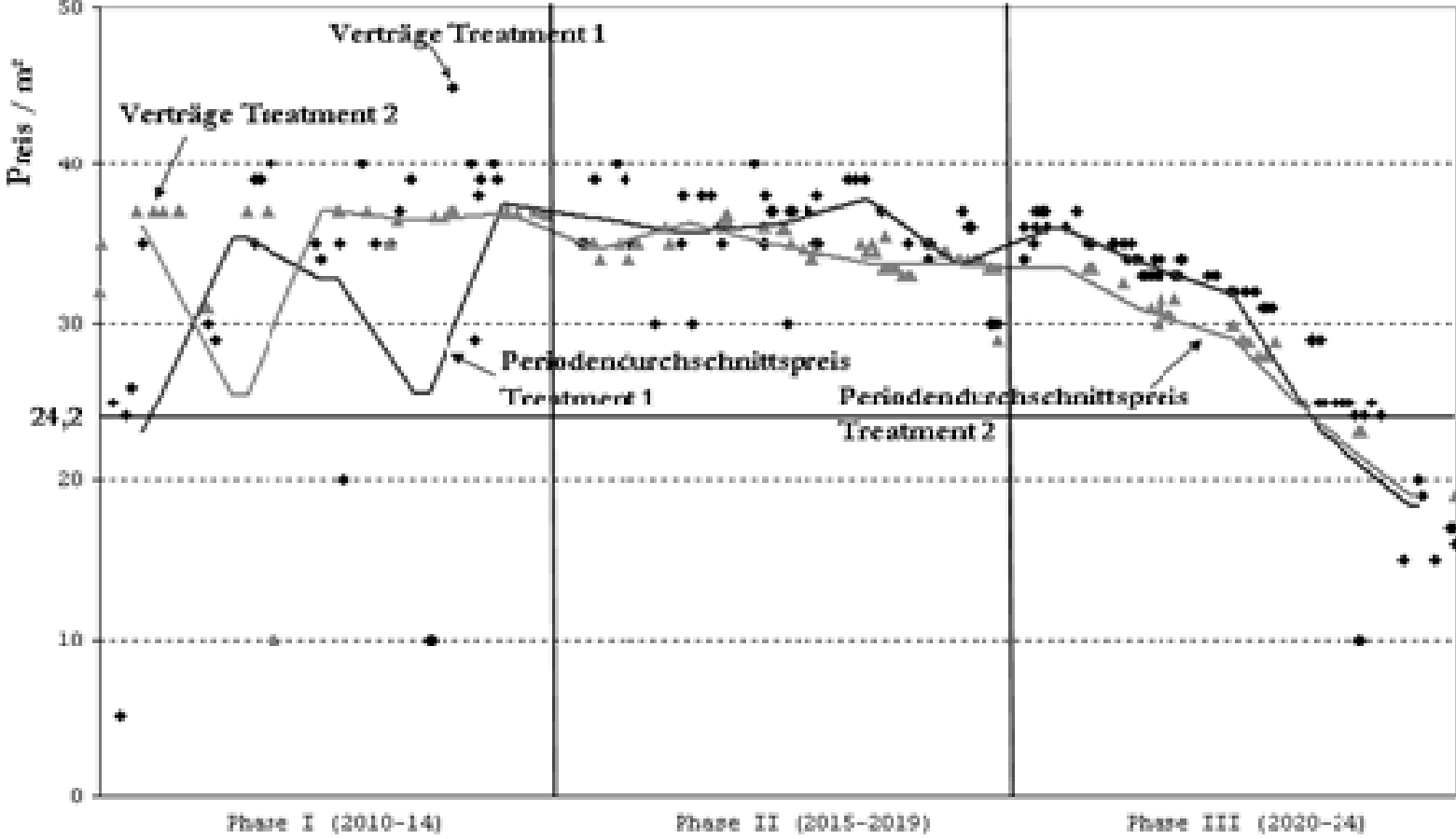
Combination of „*controlled field experiment*“ (using field data, subjects in the experiment were heads of local planning authorities) and a „*laboratory experiment with field data*“ (subjects were students, monetary incentive)

	<b>Session I:</b> Municipalities / Planers	<b>Session II:</b> Students
<b>Treatment 1:</b> Free distribution of TPP	2010-24: grandfathering, continuous trading (multi-unit double auction)	
<b>Treatment 2:</b> Hybrid distribution of TPP	2010-14: grandfathering, then MUDA 2015-19: 50% Grandfathering, 50% MUDA 2020-24: 100 % auctioning, MUDA	



# TPP: Price development (planers)

Average prices in treatment 1 und 2: each around 32 € pro m<sup>2</sup> of gross building area

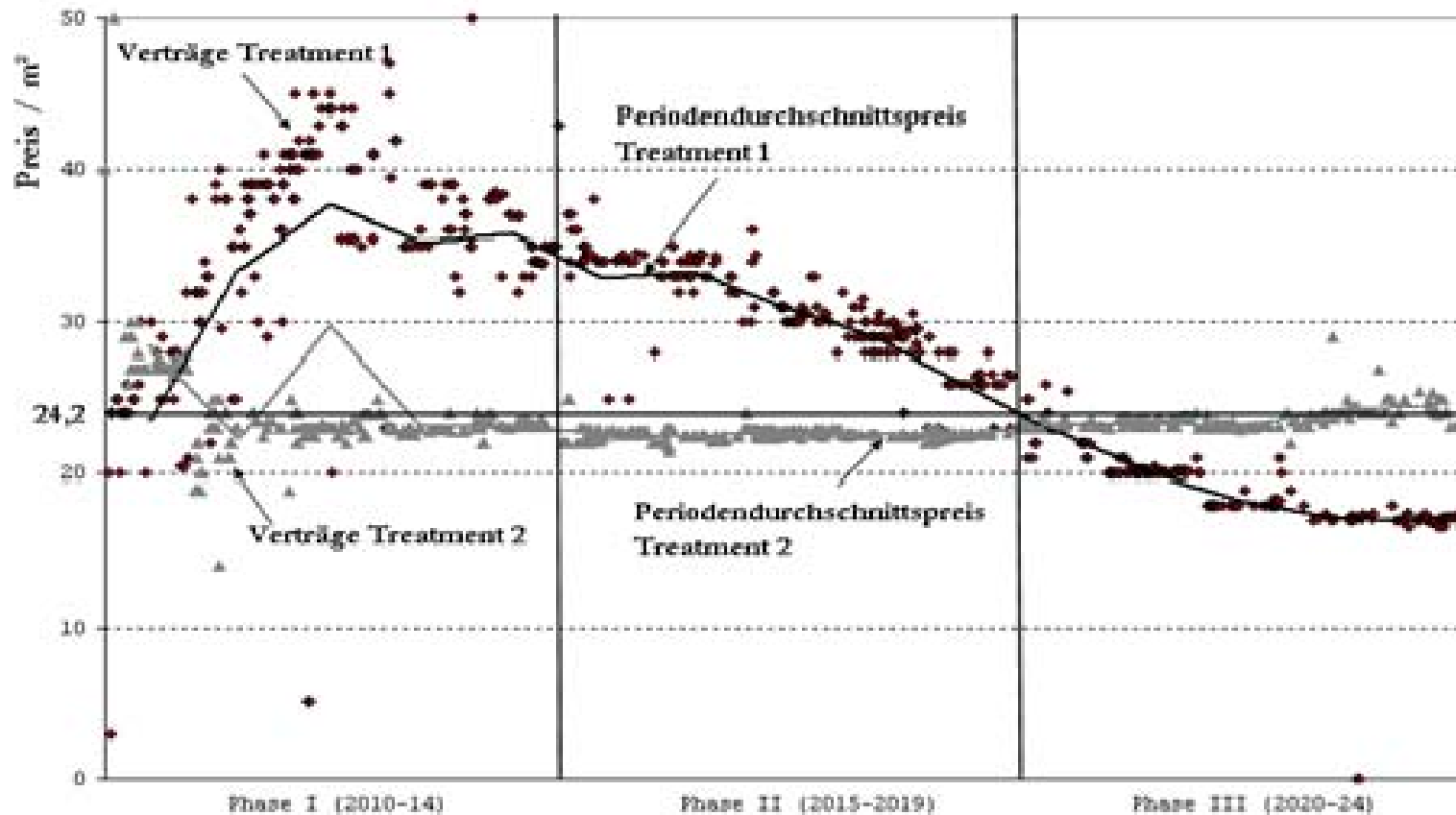


Source: Henger (2011)



# TPP: Price development (students)

Average prices in treatment 1 and 2: 27 € and 24 € per m<sup>2</sup> gross building area

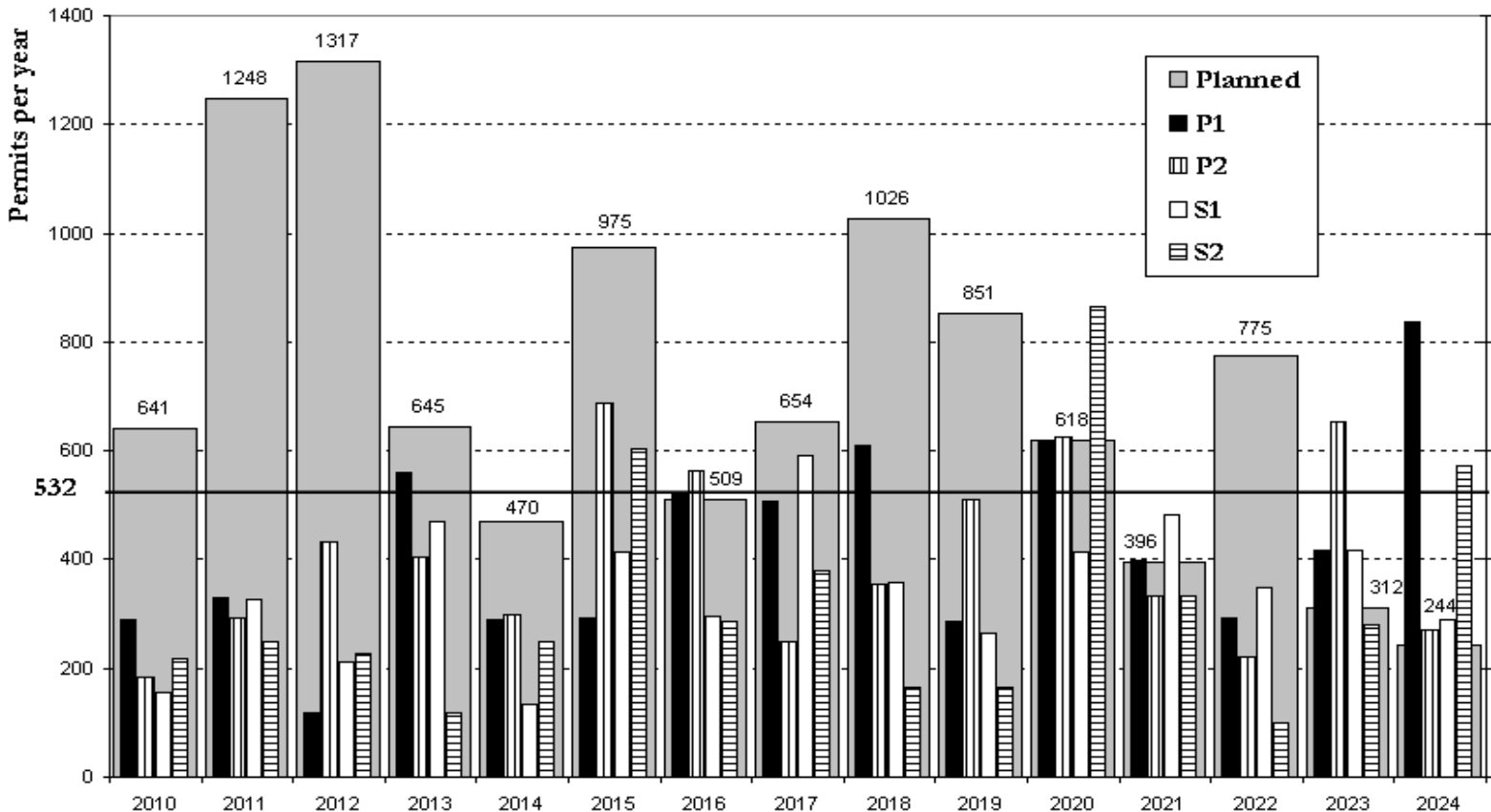


Source: Henger (2011)



# Utilization of TPPs

Planned and implemented building areas



Source: Henger (2011)

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# TPP: Results from the Hanover Region

	Planer		Studenten		Benchmarks	
	P1	P2	S1	S2	CE (T1/T2)	MP (T1)
Effizienzgrad	0,82	0,83	0,88	0,86	1,00	0,88
Gains from trade	0,28	0,34	0,53	0,58	1,00	0,49
Handelsvolumen (Mio. €)	64,1	38,0	238,7	217,6	n.a.	n.a.
Handelsbilanz (Mio. €)	50,8	32,7	99,0	64,6	0	28,9
Spekulation (Mio. €)	13,2	5,2	139,6	152,9	n.a.	n.a.
Marktmacht-Index	1,01	0,34	1,05	0,35	0	1
Eingelöste Rechte	6.368	6.083	5.171	4.804	7.959	4.619





## Conclusion

1. Price works well with planners
2. TPP guarantee the 30 ha/day objective
3. TPP can be spatially differentiated
4. (Grandfathered) TPP create burden sharing of non-development
5. Transactions costs are limited





## Conclusion: Scope for civil society in TPP?

- Limitation of trade to municipalities?
- Could NGOs buy TPP and reduce conversion rate?
  - Yes, theoretically. But pressure is high on development and gov'tment could be forced to lift the cap.
  - NGOs typically need visible projects rather than (invisible) conversion rates
  - Also, businesses should be allowed as well then. And purchasing power probably greater than of NGOs.



## Policy implications

- German planning law is ineffective with regard to 30 ha/d objective
- Implement TPP to restrict conversion of open space
- Efficient outcome: digression insubstantial and well accounted for
- TPP create burden sharing, intended to compensate municipalities foregoing development





**Thank you for your attention!**

